REMARKS

Claims 1, 3-16, 18-25, 27-40, and 42-48 are pending, of which claims 1 and 25 are independent. Reconsideration of the action mailed August 23, 2004, is requested in light of the following remarks.

The Examiner rejected claims 1, 3-9, 13, 18-25, 27-33, 37, 42-48 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,704,041 to Katayama et al. ("Katayama"). The Examiner has objected to claims 10-12, 14-16, 34-36, and 38-40 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant appreciates the Examiner's recognition of allowable subject matter in claims 10-12, 14-16, 34-36, and 38-40.

Section 102(b) Rejections

Claim 1 stands rejected as anticipated by Katayama. Claim 1 is directed to a method for forming a panoramic image. The method includes receiving a reference image a first image. The first image has a perimeter having a first shape. The relative position of the first image and the reference image is determined. A first corrected image is then generated using the first image, the reference image, and the relative position. The first corrected image has less perspective distortion relative to the reference image than the first image. The first corrected image has a perimeter having a first corrected shape. The first corrected shape is different from the first shape. The first corrected shape of the first corrected image is used to determine a focal length and rotation angles of a camera associated with the first image. The first image is then projected on a surface based on the focal length and rotation angles of the camera associated with the first image. In particular, claim 1 recites "using the first corrected shape to determine a focal length and rotation angles of a camera associated with the first image."

The Examiner states that Katayama discloses using the first corrected shape to determine a focal length and rotation angles at FIGS. 16 and 18; col. 10, lines 22-23, and col. 10, lines 26-

36. In particular, the Examiner states that the focal length is determined at step 44 of FIG. 16.
Applicant respectfully disagrees.

The method disclosed in FIG. 16 illustrates a portion of a method for combining two
images. The method includes: 1) examining the pixels of each image to find the point of greatest
correlation between the two images (i.e., identifying an overlap of the two images); 2)
determining the photographic method, for example, panning or translation, used to generate the
images; and 3) combining the images. *See* col. 3, line 55 to col. 4, line 45; col. 4, line 49 to col.
5, line 25; and col. 5, lines 26-51. Katayama describes several implementations of the above
method for combining images when the focal length is known. *See* col. 5, lines 26-51; col. 6,
lines 42-51; and col. 8, lines 26-42. Katayama also describes one technique for estimating the
focal length of a camera when the focal length is unknown. *See* col. 8, line 26-42. However,
Katayama does not disclose a technique for determining the focal length using the shape of a
perimeter of an image corrected for perspective distortion.

The Examiner states that the focal length estimation at step S41 of FIG. 16 corresponds to
the focal length determination in claim 1. However, the focal length estimation described by
Katayama uses pixel image information for a pair of images and not the shape of any image. *See*
col. 9, lines 45-55; col. 3, line 53-col. 4, line 48. Katayama defines the focal length estimation in
equation 12, illustrated on col. 10, lines 26 and 36. Equation 12, however, is derived from
equation 3. *See* col. 9, lines 46-47. Equation 3 describes formulas for determining the
coordinate relationship between corresponding points of two images. *See* col. 4, lines 39-45.
The corresponding points are determined using a correlation analysis of overlapping pixels in
each image. *See* col. 3, line 64 to col. 4, line 17. Thus, Katayama requires image pixel data in
order to estimate focal length and does not use the shape of an image perimeter. There is no
disclosure or suggestion in Katayama of using the shape of the perimeter of an image corrected
for perspective distortion to determine a focal length of a camera associated with an image.

Katayama also fails to disclose or suggest using the shape of the perimeter of an image
corrected for perspective distortion to determine rotation angles. The Examiner states that
Katayama discloses the determination of the rotation angles associated with the image at col. 10,

lines 22-23. Katayama discloses equation 13, which includes a viewing angle for a plurality of images generated in a panning process as a function of the focal length and x_k. *See* col. 10, lines 21-36. The variable x_k is calculated based on the center line of the overlapping area between images, which is determined by calculating the overlapping area between images. *See* col. 10, lines 28-32. The overlapping area between images is determined based on a correlation value between points in each image, where the points are extracted based on a maximum correlation between pixels in the images. *See* col. 3, line 64 to col. 4, line 17.

Furthermore, equation 13 is actually used by Katayama to determine focal length, not rotational angle. *See* col. 10, lines 38-39. Regardless, solving for the rotational angle in equation 13 provides the rotational angle as a function of image pixel data and not the shape of an image corrected for perspective distortion. Furthermore, Katayama as a whole fails to disclose or suggest the use of a shape of an image's perimeter for any purpose, including the determination of a focal length and rotational angles. Applicant respectfully submits that claim 1, as well as claims 3-16 and 18-24, which depend from claim 1, are in condition for allowance.

Claim 9 stands rejected as anticipated by Katayama. Claim 9 recites "using the second corrected shape to determine a focal length and rotation angles of a camera associated with the second image." Katayama does not use the shape of any image, corrected or not, to determine a focal length or rotation angles of a camera. For at least the same reasons as set forth with respect to claim 1, claim 9 is in condition for allowance.

Claim 25 stands rejected as anticipated by Katayama. Claim 25 recites "use the first corrected shape to determine a focal length and rotation angles of a camera associated with the first image." For at least the same reasons as set forth with respect to claim 1, claim 25 as well as claims 27-40 and 42-48, which depend from claim 25, are in condition for allowance.

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Respectfully submitted,

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